

Reusable, Recyclable Plastic Beer Case

"This packaging concept could ultimately remove 70 per cent of corrugate from the present recycling stream of brewery-grade scrap generated in Ontario. The project has established that a per case deposit is not a barrier to consumers' acceptance of this new type of packaging."

Barry Luce
President, Tri-R Packaging Systems Inc.
London, Ontario

"We realize there is a market demand for green products, but we also realize that, as a business, you must watch your bottom line. We think the re-usable case will help satisfy both requirements"

John Sleeman, President
Sleeman Brewing and Malting Company
Guelph, Ontario

THE COMPANY

Tri-R Packaging is a research, development and marketing company with expertise in consumer packaging and plastic injection moulding. The company's objective is to make and market packaging, such as beer cases, which demonstrate its commitment to environmental stewardship and to the 3Rs - reduce, reuse and recycle.

THE CHALLENGE

Traditional plastic packaging for bottles usually has taken the form of crates. Tri-R and Sleeman joined forces to develop and test a new type of beer case, which they called the Lucepak.

To make this case, Tri-R developed a new mould for a lightweight, plastic beer case which had a tamperproof closure and space for the product's labels.



The Lucepak beer case

TECHNOLOGY DESCRIPTION

Tri-R used a "gas-assist" technology to make the new case. This process injected nitrogen into a central nozzle and molten plastic into the mould at the same time. The plastic was injected so that it surrounded and encapsulated the gas. When they met, the nitrogen expanded nearly 600 times its volume and rapidly travelled a pre-determined "gas-path" of least resistance within the mould. The

interior started cooling off immediately because the expanding compressed gas was so cold.

The new case is a sturdy, single-purpose, reusable container that helps to reduce the number of bottles broken in transit.

During the field trial, sales of the beer which Sleeman packaged in this case rose by 24 per cent, far exceeding the 1.3 per cent increase for the industry for the same period.

RESULTS

The nitrogen "gas-assist" technology which Tri-R used to make the cases required 30 per cent less energy and employed machines that were 30 per cent smaller than those used now. Further, the process shaved 20 per cent off the cycle time.

More than 17,000 tonnes of corrugated cardboard could be saved each year, if the brewing industry used a lightweight, reusable base with a corrugate lid instead of the present corrugated cardboard case.

TECHNOLOGY OPPORTUNITIES

In Canada, the structure of the distribution system for beer means that the whole industry would have to convert to the new packaging if it is to succeed. If only one brewer converts then it would end up paying higher sorting costs.

Tri-R is looking at markets outside of Canada where greater competition promotes a keener interest in exploring alternative packaging. The company is optimistic that an international brewer will adopt the Lucepak.

The "tamperproof" closure on the lid - which is applied and locked under a security lip on the case - is ideal for the beverage and fruit drink industries. But such a lid also could be used for grocery items now packed in corrugated cardboard such as frozen foods, paper products, glass jars and snack foods.

The use of the "gas-assist" plastic injection-moulding technique continues to increase in the automotive and electrical plastic component and original equipment manufacturers market.

PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

The development of this technology was partially funded by the Ontario Ministry of Environment and Energy.

Industrial companies which are located in Ontario may participate in ministry/industry programs which will help them to:

- * reduce, reuse and recycle solid waste;
- * remediate historic pollution effectively and destroy hazardous contaminants;
- * reduce or eliminate liquid effluent and gaseous emissions;
- * use energy and water more efficiently.

Equipment and service supply companies can benefit from the information provided on technologies identified for business development.

Credit must be given to several corporate participants which supported the research and development of the new beer case. Each made a valuable contribution to the field trial and demonstration of this product.

Sleeman Brewing and Malting Co. Ltd. - helped Tri-R develop the Lucepak by selling Sleeman's Cream Ale in it.

Accutech Design Inc. - designed and manufactured the lid-application machine.

Dow Chemical Co. of Canada, a manufacturer of plastic resins - provided technical advice and helped measure, collect and analyze data.

"Gain" Technologies - manufactured and licensed the nitrogen "gas-assist" generators and process control equipment.

The Brewers Retail Inc. - and its The Beer Store sales outlets, provided shelf space for the beer in the alternative packaging giving it market exposure.

FOR FURTHER INFORMATION, PLEASE CONTACT

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MINISTRY OF ENVIRONMENT AND ENERGY PROGRAMS

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416)327-141492, Fax: (416)327-1261.

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This project profile was prepared and published as a public service by the Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about applications of new environmental technologies.

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